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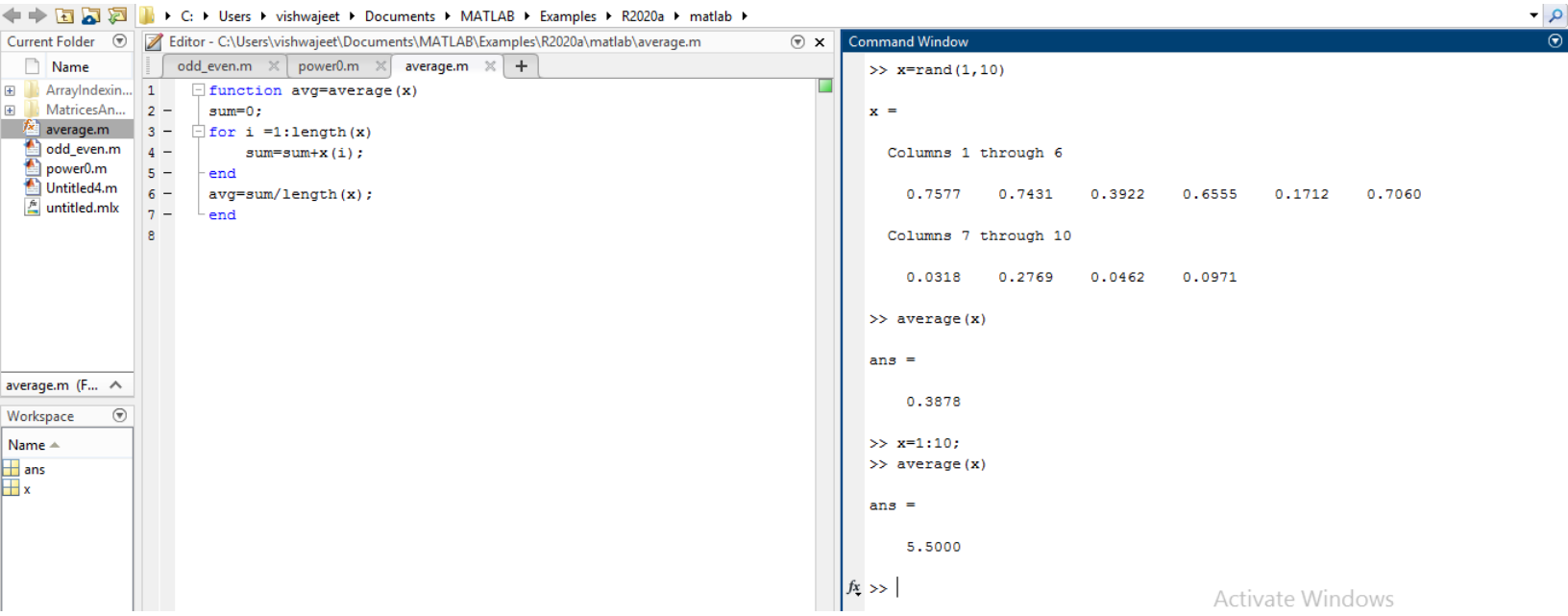
Q_1:average of 10 no.



Q2: Odd_Even

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Current Folder

Name

- ArrayIndexin...
- MatricesAn...
- odd_even.asv
- average.m
- odd_even.m
- power0.m
- Untitled4.m
- untitled.mlx

average.m (F...

Workspace

Name

- A
- ans
- b
- x
- y

Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\odd_even.m

odd_even.m | power0.m | average.m

```
%withot else
disp('--------without else---------')
x=input('entered number x=')
if mod(x,2)==0
   fprintf('ans= \n  %d is even number \n',x);
end
if mod(x,2)~=0
   fprintf('ans= \n %d is odd number\n ',x);
end

disp('-------------with using else--------')

%with else
y=input('entered number y= ')
if mod(y,2)==0
    fprintf('ans= \n %d is even number \n',y)
else
    fprintf('ans= \n %d is odd number \n',y)
end
```

Command Window

```
>> odd_even
--------without else---------
entered number x=44

x =

    44

ans=
  44 is even number
-------------with using else--------
entered number y= 35

y =

    35

ans=
 35 is odd number
>>
```

Q3:cube upto 15

Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\cube.m

```
% cube of first 15 natural numbers using while
c=[];i=0;
while i<15
    i=i+1;
    b=i^3;
    c(i)=b;
end
for j=1:15
    fprintf('cube of %d is %d \n',j,c(j))

end
```

Command Window

```
>> cube
cube of 1 is 1
cube of 2 is 8
cube of 3 is 27
cube of 4 is 64
cube of 5 is 125
cube of 6 is 216
cube of 7 is 343
cube of 8 is 512
cube of 9 is 729
cube of 10 is 1000
cube of 11 is 1331
cube of 12 is 1728
cube of 13 is 2197
cube of 14 is 2744
cube of 15 is 3375
>>
```

Q4: adding numbers untill zero

Current Folder

Name

- ArrayIndexin...
- MatricesAn...
- addition.asv
- average.m
- addition.m*
- cube.m
- odd_even.m
- power0.m
- Untitled4.m
- untitled.mlx

addition.m* (...

Workspace

Name

- c
- x

Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\addition.m

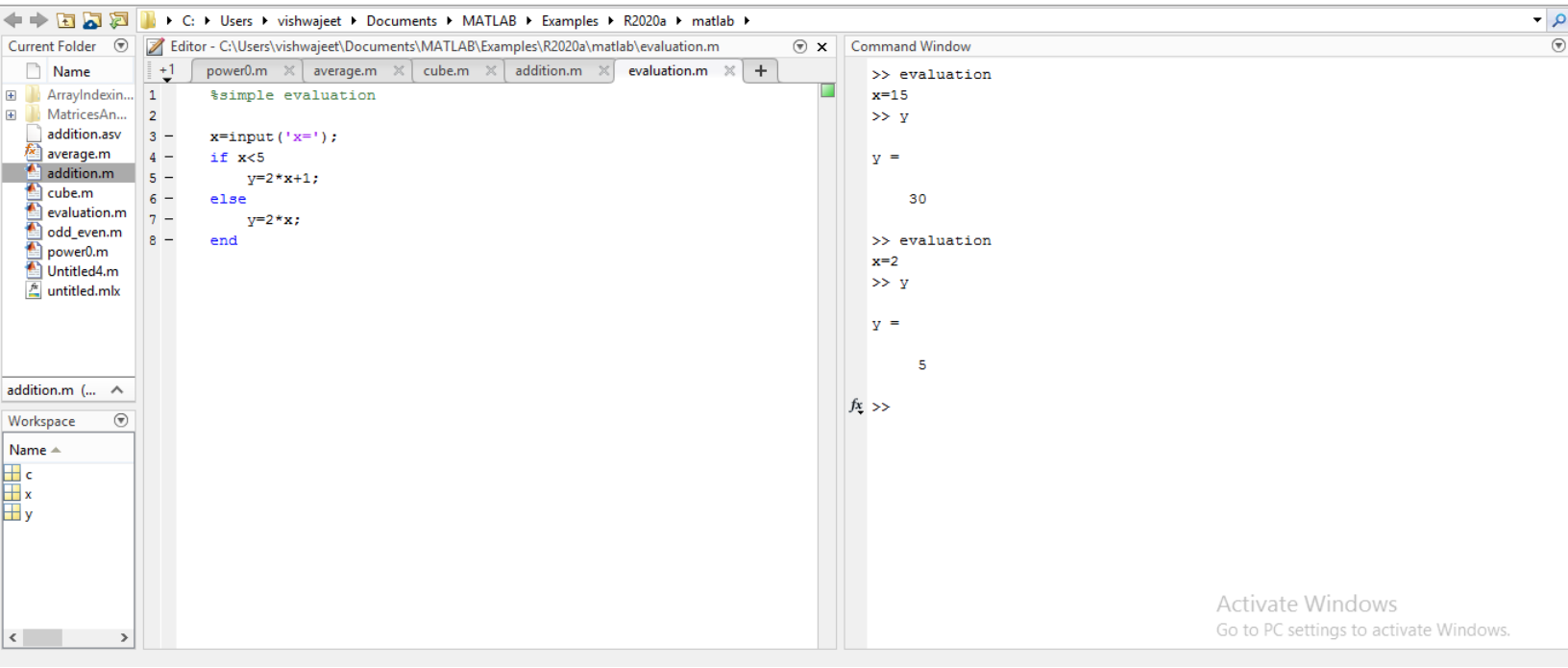
odd_even.m | power0.m | average.m | cube.m | addition.m

```
c=0;
while 'a' %instead 'a' we can use anything except empty  values
    x=input('enter number');
    if x~=0
       c=x+c;
    else
        break
    end

end
```

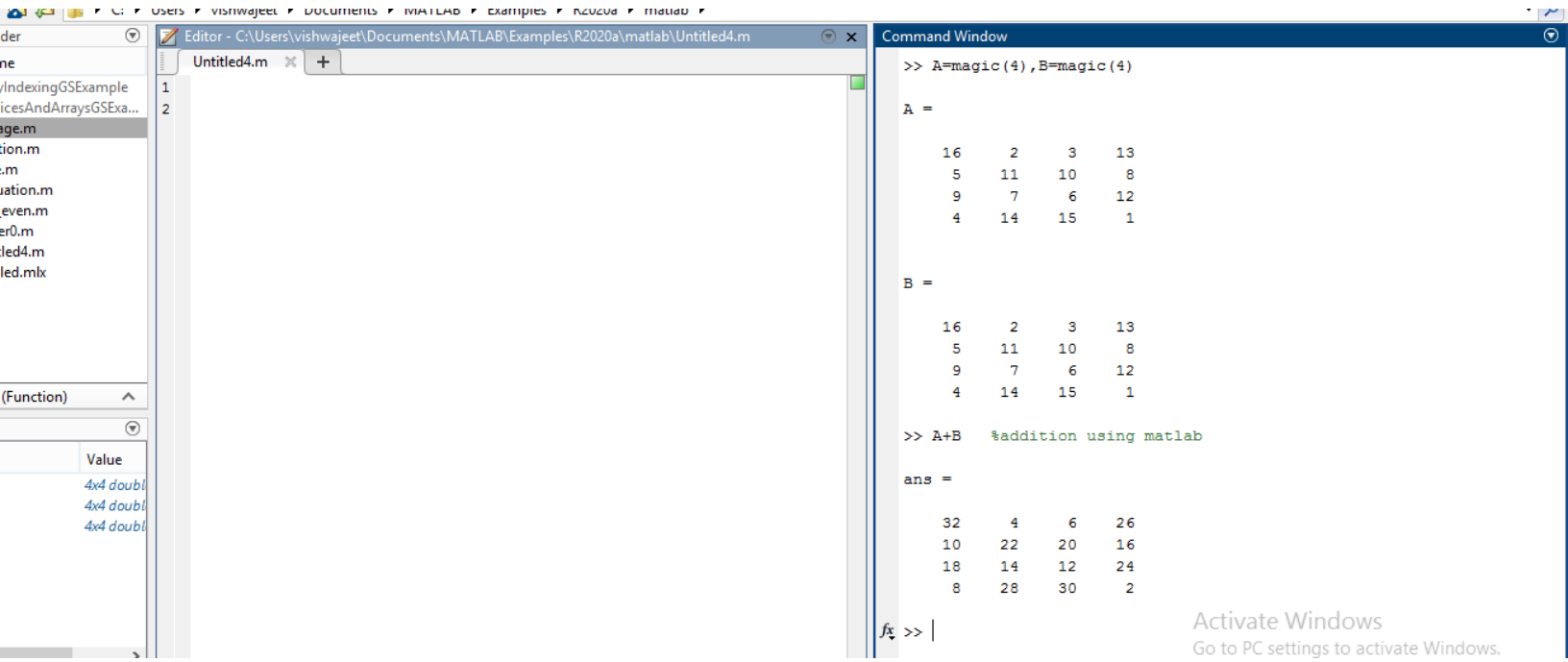
Command Window

```
>> addition
enter number1
enter number2
enter number3
enter number4
enter number5
enter number6
enter number7
enter number8
enter number9
enter number0
>> c

c =

    45

>>
```

Q5: evaluation



Q6-->(i) using MATLAB as tool



Q6-->(ii) add,sub using script file

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Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\add_sub.m

add_sub.m | odd_even.m

```
A=10*round(randn(3,4))
B=10*round(randn(3,4))
 [s1,s2]=size(A);

   addi=zeros(s1,s2);subtr=addi;
    for i=1:s1
        for j=1:s2
            addi(i,j)=A(i,j)+B(i,j);
            subtr(i,j)=A(i,j)-B(i,j);
        end
    end
fprintf('addition A+B = \n')
disp(addi)
fprintf('subtraction A-B= \n')
disp(subtr)
```

Command Window

```
>> %using script file
>> add_sub

A =

     0     0     0     0
     0   -10     0   -10
    10    10    10     0


B =

     0   -10   -10    20
   -10     0     0     0
    20   -10     0   -10

addition A+B =
     0   -10   -10    20
   -10   -10     0   -10
    30     0    10   -10

subtraction A-B=
     0    10    10   -20
    10   -10     0   -10
   -10    20    10    10

>>
```

Q6--(iii) add,sub using function

Editor - C:\Users\Vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\add_sub.m

add_sub.m

```
function [addi,subtr]=add_sub(A,B)
    [s1,s2]=size(A);
    addi=zeros(s1,s2);subtr=zeros(s1,s2);
    for i=1:s1
        for j=1:s2
            addi(i,j)=A(i,j)+B(i,j);
            subtr(i,j)=A(i,j)-B(i,j);
        end
    end
    addi,subtr
end
```

Command Window

```
>> %using function
>> a=randi(10,3,4);b=randi(10,3,4);
>> add_sub(a,b)

addi =

     7    12    11    17
    10    13    13    15
     7    16     8    15


subtr =

     5     6     1    -3
     4     3    -5     1
     3     4    -4    -5
```

Q7: Fibonacci series function

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Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\fibo.m

add_sub.m | fibo.m

```
%fibonacci series

function fi=fibo(x)
    fi=[0 1];
    for i=3:x
        fi(i)=fi(i-2)+fi(i-1);
    end
end
```

Command Window

```
>> fibo(2)

ans =

     0     1

>> fibo(5)

ans =

     0     1     1     2     3

>> fibo(14)

ans =

  Columns 1 through 11

     0     1     1     2     3     5     8    13    21    34    55

  Columns 12 through 14

    89   144   233

>>
```

Q8: hrs:min:sec

Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\timmer.m

timmer.m

```
function [h,m,s]=timmer(x)
  h=floor(x/3600);
  a=rem(x,3600);
  m=floor(a/60);
  s=rem(a,60);
end
```

Command Window

```
>> [h m s]=timmer(3664)

h =

     1


m =

     1


s =

     4

>>
```

Q9: mean and std of vector

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Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\avg_std.m

timmer.m | avg_std.m

```
%mean and std of  vector
function [avg,std1]=avg_std(x)
    avg=mean(x);
    std1=std(x);
end
```

Command Window

```
>> x=rand(1,10000000);
>> [avg,std1]=avg_std(x)

avg =

    0.5000


std1 =

    0.2887

>>
```

Q10: matrix multiplication

Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\multiplication.m

multiplication.m

```
%multiplication of matrices
function c=multiplication(a,b)
  [s1,s2]=size(a); [s3,s4]=size(b);c=zeros(s1,s4);
  if s3~=s2
      disp('matrix multiplication is not  valid')
  else
     for i=1:s1
         for j=1:s4
             for k=1:s2
                 c(i,j)=a(i,k)+b(k,j);
             end
         end
     end
  end
end
```

Command Window

```
>> a=rand(3,5);b=rand(4,5);
>> multiplication(a,b)
matrix multiplication is not  valid
>> a=rand(3,5);b=rand(5,5);
>> multiplication(a,b)

ans =

    1.4182    0.8730    0.9382    1.5277    1.1987
    1.1788    0.6336    0.6988    1.2883    0.9593
    1.6248    1.0795    1.1447    1.7342    1.4053

>>
```

Q11: anonymous solution of polynomial

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Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\polynomial.m

multiplication.m | polynomial.m

```
%anonymous function

poly=@(x) x^4+5*x+2*x^2+3;
```

Command Window

```
>> polynomial
>> x=[2,-2,7,3];
>> for i=1:length(x)
poly(i)
end

ans =

    11


ans =

    37


ans =

   117


ans =

   311

>>
```

Q12: percentage

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Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\percent.m

multiplication.m | polynomial.m | percent.m

```
%percentge

function percent=percent(x)  % x should be vector
    n=input('enter max or out of marks=');
    percent=sum(x,'all')*100/(length(x)*n);
end
```

Command Window

```
>> x=[100 200 300 455 564 234 456 123 1000];
>> percent(x)
enter max or out of marks=1000   %max marks ==1000

ans =

   38.1333

>>
```

Q13: basic calculator

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Editor - C:\Users\vishwajeet\Documents\MATLAB\Examples\R2020a\matlab\calculation.m

multiplication.m | polynomial.m | percent.m | calculation.m

```
% switch-case calculator
r=input("select opertation ,'+','-','*','/':");
A=input('enter number');
B=input('enter number');
switch r
    case '+'
        disp(A+B)
    case '-'
        disp(A-B)
    case '*'
        disp(A*B)
    case '/'
        disp(A/B)

    otherwise
        disp('invalid operation')
end
```

Command Window

```
>> calculation
select opertation ,'+','-','*','/':'+'
enter number8
enter number7
    15

>> calculation
select opertation ,'+','-','*','/':'/'
enter number8
enter number9
    0.8889

>> calculation
select opertation ,'+','-','*','/':';'
enter number9
enter number7
invalid operation
>>
```